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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/669,522

09/24/2003

Kenji Karaki

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4330

1933 7590 04/28/2008

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EXAMINER

JERABEK, KELLY L

ART UNIT

PAPER NUMBER

2622

MAIL DATE

DELIVERY MODE

04/28/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/669,522	Applicant(s) KARAKI, KENJI	
	Examiner KELLY L. JERABEK	Art Unit 2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 April 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) 8-25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This is a first office action in response to application 10/669,522 filed on 9/24/2003 in which claims 1-25 are presented for examination.

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Election/Restrictions

Applicant's election without traverse of the first species corresponding to claims 1-7 in the reply filed on 4/2/2008 is acknowledged.

Claims 8-25 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 4/2/2008.

Information Disclosure Statement

The information disclosure statements (IDS) submitted on 9/24/2003 and 4/10/2008 are in compliance with the provisions of 37 CFR 1.97. Accordingly, the

Art Unit: 2622

information disclosure statements are being considered by the examiner. However, the Examiner notes that the reference JP 06-045571 included in the information disclosure statement (IDS) submitted on 4/10/2008 does not include an English translation and therefore the reference has not been considered by the Examiner.

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Conder US 6,341,067 in view of Kitazawa et al. US 6,940,542 and further in view of McDermott et al. US 5,043,845.

Re claim 1, Conder discloses an imaging apparatus comprising: a plate type fixed portion (support plate 54); a spring portion (58) formed by notching the inside of the fixed portion (support plate 54) (col. 5, lines 11-59; figures 4-5); an imaging element (CCD 53) provided on the support plate (54); a cooling element (TE cooler 52) having a cooling surface thereof being in contact with a back side of the imaging element (CCD 53) through a heat sink (44); and a housing (camera chassis 20) which accommodates therein the fixed portion (support plate 54), the imaging element (CCD 53), the cooling element (TE cooler 52), and discharges heat conducted from a heat generating surface of the cooling element (TE cooler 52) through the fixed portion (support plate 54)(col. 5, lines 11-59; figures 4-5). However, although the Conder reference discloses all of the above limitations it fails to specifically state that the imaging apparatus includes a movable portion supported in the fixed portion so as to be capable of slightly moving through the spring portion and a micro-motion element such as a piezoelectric actuator that slightly moves the movable portion.

Kitazawa discloses a digital camera capable of shake detection and shake correction. Kitazawa states that an image pickup device (51) is mounted on a board (54) and the image pickup device (51) and the board (54) are capable of being moved and shifted by micro-motion elements (piezoelectric actuators 55y, 55p) (col. 15, lines 38-55; figure 7). Therefore, it would have been obvious for one skilled in the art to have been motivated to include micro-motion elements (piezoelectric actuators 55y, 55p) for moving and shifting an image sensor and a board as disclosed by the Kitazawa reference in the imaging apparatus disclosed by the Conder reference. Doing so would

provide a means for shifting an image sensor and an image sensor support plate in order to correct image signals and reduce image blur in the event that the camera shakes.

The combination of the Conder and Kitazawa references discloses all of the above limitations. Additionally, Conder discloses a gap (CCD chamber 51) between a support plate (54) and a cooling element (TE cooler 52) and heat sink (44) (col. 5, lines 11-59; figures 4-5). However, neither reference specifically discloses a grease type highly thermal conductive member interposed in a gap between a fixed portion and a movable portion in the imaging apparatus.

McDermott discloses a high-speed CCD sensor mounting system. McDermott states that it is well known to place a grease that is highly thermally conductive between a sensor array and a heat sink (30) when mounting a CCD array (12) (col. 3, lines 48-65). Therefore, it would have been obvious for one skilled in the art to have been motivated to include a grease that is highly thermally conductive as disclosed by McDermott in the mounting structure of the imaging apparatus disclosed by the combination of the Conder and Kitazawa references. Doing so would provide a means for increasing the thermal conductivity between the image sensor and a cooling element and heat sink of an image apparatus.

Re claim 2, Kitazawa discloses a micro-motion element (55y, 55p) that is a piezoelectric actuator (col. 15, lines 38-55; figure 7).

Re claim 3, Conder states that the imaging element (CCD 53) is cooled directly or indirectly by using cooling element (TE cooler 52) (col. 5, lines 11-59).

Re claims 4-5 and 7, McDermott discloses placing a grease that is highly thermally conductive between a sensor array and a heat sink (30) when mounting a CCD array (12) (col. 3, lines 48-65). The Examiner maintains that it is inherent that grease has a certain degree of viscosity so that the grease does not flow freely (as opposed to oil or other types of fluids which have a different degree of viscosity so that it is possible to flow freely).

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Conder US 6,341,067 in view of Kitazawa et al. US 6,940,542 in view of McDermott et al. US 5,043,845 and further in view of Pellegrino et al. US 5,216,250.

Re claim 6, the combination of the Conder, Kitazawa and the McDermott references disclose all of the limitations of claim 1 above. Additionally, Conder states that air from the CCD chamber (51) is pumped out so that a vacuum environment is created to avoid condensation. However, none of the references specifically states that a CCD housing is filled with an inert gas.

Pellegrino discloses a digital camera including a CCD array. Pellegrino states that it is well known to evacuate air from an air-tight camera housing and introduce inert nitrogen gas into the camera housing (col. 1, lines 17-40). Therefore, it would have

Art Unit: 2622

been obvious for one skilled in the art to have been motivated to introduce inert nitrogen gas as disclosed by Pellegrino into the CCD chamber of the imaging apparatus disclosed by the combination of the Conder, Kitazawa and McDermott references. Doing so would provide a means for eliminating water vapor from condensing within the camera and ensuring efficient and long and useful life of an imaging apparatus (Pellegrino: col. 1, lines 34-40).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Sato et al. (US 6,930,708) discloses an apparatus and system for correction based upon detecting a camera shaking. The information regarding moving an image sensor of a camera is relevant.

Yoshida (US 6,307,590) discloses a cooled CCD camera. The information regarding controlling the temperature of a CCD image sensor is relevant.

Miyaguchi et al. (US 5,508,740) discloses a solid-state imaging device having a temperature sensor. The information regarding controlling the temperature of an image sensor is relevant.

Contacts

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kelly L. Jerabek whose telephone number is **(571) 272-7312**. The examiner can normally be reached on Monday - Friday (8:00 AM - 5:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lin Ye can be reached at **(571) 272-7372**. The fax phone number for submitting all Official communications is **(571) 273-7300**. The fax phone number for submitting informal communications such as drafts, proposed amendments, etc., may be faxed directly to the Examiner at **(571) 273-7312**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Kelly L. Jerabek/

Primary Examiner, Art Unit 2622